another example, the fuel processing system may employ a hydrogen separation membrane unit. The raffinate from such a membrane unit may comprise carbon dioxide and could also be supplied as the purge gas. As a further example, burner exhaust gas could be supplied as a purge gas, provided it is sufficiently oxygen-depleted.

In another embodiment of the present fuel processing system, the means for supplying a purge gas to the reformer comprises a vaporizer for supplying steam thereto. The vaporizer may be integrated into another fuel processing system component, such as the reformer, or it may be an independent component.

The selection of inert gas and means of supplying the purge gas to the reformer are not essential to the present method or fuel processing system, and depend on such factors as the size and composition of the system and its end use. Persons skilled in the art can select suitable inert gases and supply means for a given application.

In the present fuel processing system, hydrogen is supplied to the purge gas from a suitable hydrogen supply. For example, a pressurized hydrogen tank could be employed. Alternatively, a metal hydride container could be used. If desired, a portion of the hydrogen-rich stream from downstream fuel processing components could be diverted to the re-fill the hydrogen supply during normal operation. As a further alternative, the hydrogen supply could comprise one of the downstream fuel processing components. In this case, a portion of the hydrogen-rich stream could be diverted from the component and added to the purge gas directly, thereby reducing or eliminating the need for a hydrogen storage container.

While the present method has been described in relation to protecting steam reforming catalyst, it may also assist in protecting other oxidizable catalyst beds in fuel processing systems. It is believed that oxidation of such catalyst beds is negligible at temperatures under about 400 °C, so this is primarily a concern for fuel processing components, such as reformers, that operate at or above that temperature. However, high-temperature shift reactors typically operate at temperatures between about 300 °C and about 450 °C. Thus, during purging of fuel processing systems employing high-temperature shift

reactors, the presence of hydrogen in the purge gas may assist in preventing oxidation of the shift catalyst bed, as well.

While particular elements, embodiments and applications of the present invention have been shown and described, it will be understood, of course, that the invention is not limited thereto since modifications may be made by those skilled in the art, particularly in light of the foregoing teachings. It is therefore contemplated that the appended claims cover such modifications as incorporate those features that come within the scope of the invention.